

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE  
COMITÉ INTERNATIONAL SPÉCIAL DES PERTURBATIONS RADIOÉLECTRIQUES

**Electromagnetic compatibility – Requirements for household appliances,  
electric tools and similar apparatus –  
Part 2: Immunity – Product family standard**

**Compatibilité électromagnétique – Exigences relatives aux appareils  
électrodomestiques, outillages électriques et appareils analogues –  
Partie 2: Immunité – Norme de famille de produits**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION  
INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

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**ELECTROMAGNETIC COMPATIBILITY –  
REQUIREMENTS FOR HOUSEHOLD APPLIANCES,  
ELECTRIC TOOLS AND SIMILAR APPARATUS –**

**Part 2: Immunity – Product family standard**

**FOREWORD**

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International Standard CISPR 14-2 has been prepared by CISPR subcommittee F: Interference relating to household appliances tools, lighting equipment and similar apparatus.

This second edition cancels and replaces the first edition published in 1997, Amendment 1:2001 and Amendment 2:2008. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) 5.1: For ESD tests on contacts of plugs and sockets the note ("The 4 kV contact discharge shall be applied to conductive accessible parts. Metallic contacts, such as in battery compartments or in socket outlets, are excluded from this requirement.") saying that no test on contacts is necessary has been removed. The IEC 61000-4-2 includes a detailed

description how to deal with ESD on contacts and other surfaces. Also discharge on HCP and VCP is required by the basic standard IEC 61000-4-2.

- b) 5.3 and 5.4: The tables for tests at d.c. power ports according IEC 61000-4-6 are aligned with the generic standards and are the same for 5.3 and 5.4.
- c) 5.3 and 5.4: For EUT with single mains cable and no other cable, the test set-up as shown in Figure 2 shall be used. The set-up as described in Annex F of IEC 61000-4-6:2013 shall not be used.
- d) 5.5: The IEC 61000-4-22 has been introduced as alternative method for testing radiated immunity.
- e) 5.6: No line-to-earth surges are applied to products which do not have provision for connection to earth.

The text of this standard is based on the following documents:

FDIS	Report on voting
CISPR/F/652/FDIS	CISPR/F/657/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the CISPR 14 series, published under the general title *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## INTRODUCTION

The intention of this standard is to establish uniform requirements for the electromagnetic immunity of the equipment mentioned in the scope, to fix test specifications of immunity, to refer to basic standards for methods of testing, and to standardize operating conditions, performance criteria and interpretation of results.

*Keywords:* Immunity, household appliances, electric apparatus, electromagnetic compatibility.



# **ELECTROMAGNETIC COMPATIBILITY – REQUIREMENTS FOR HOUSEHOLD APPLIANCES, ELECTRIC TOOLS AND SIMILAR APPARATUS –**

## **Part 2: Immunity – Product family standard**

### **1 Scope**

**1.1** This part of CISPR 14 deals with the electromagnetic immunity of appliances and similar apparatus for household and similar purposes that use electricity, as well as electric toys and electric tools, the rated voltage of the apparatus being not more than 250 V for single-phase apparatus to be connected to phase and neutral, and 480 V for other apparatus.

Apparatus may incorporate motors, heating elements or their combination, may contain electric or electronic circuitry, and may be powered by the mains, by transformer, by batteries, or by any other electrical power source.

Apparatus not intended for household use, but which nevertheless may require the immunity level, such as apparatus intended to be used by laymen in shops, in light industry and on farms, are within the scope of this standard, as far as they are included in CISPR 14-1. In addition, the following are also included in the scope of this standard:

- microwave ovens for domestic use and catering;
- cooking hobs and cooking ovens, heated by means of r.f. energy;
- (single- and multiple-zone) induction cooking appliances;
- appliances for personal care equipped with radiators in the range from UV to IR, inclusive (this includes visible light);
- power supplies and battery chargers provided with or intended for apparatus within the scope of this standard.

**1.2** This standard does not apply to:

- equipment for lighting purposes;
- apparatus designed exclusively for heavy industrial purposes;
- apparatus intended to be part of the fixed electrical installation of buildings (such as fuses, circuit breakers, cables and switches);
- apparatus intended to be used in locations where special electromagnetic conditions prevail, such as the presence of high electromagnetic fields (for example in the vicinity of a broadcast transmitting station), or where high pulses occur on the power network (such as in a power generator station);
- radio and television receivers, audio and video equipment, and electronic music instruments other than toys;
- medical electrical appliances;
- personal computers and similar equipment other than toys;
- radio transmitters;
- apparatus designed to be used exclusively in vehicles;
- babies surveillance systems.

**1.3** Immunity requirements in the frequency range 0 Hz to 400 GHz are covered.

**1.4** The effects of electromagnetic phenomena relating to the safety of apparatus are excluded from this standard and are covered by other standards, for example in the IEC 60335 series.

Abnormal operation of the apparatus (such as simulated faults in the electric circuitry for testing purposes) is not taken into consideration.

NOTE 1 Attention is drawn to the fact that additional requirements can be necessary for apparatus intended to be used on board ships or aircraft.

**1.5** The object of this standard is to specify the immunity requirements for apparatus defined in the scope in relation to continuous and transient, conducted and radiated electromagnetic disturbances, including electrostatic discharges.

These requirements represent essential electromagnetic compatibility immunity requirements.

NOTE 2 In special cases, situations will arise where the level of disturbances may exceed the test values specified in this standard. In these instances special mitigation measures may have to be employed.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)* (available at [www.electropedia.org](http://www.electropedia.org))

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*  
IEC 61000-4-3:2006/AMD1:2007  
IEC 61000-4-3:2006/AMD2:2010

IEC 61000-4-4:2012, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5:2014, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6:2013, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-11:2004, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61000-4-22:2010, *Electromagnetic compatibility (EMC) – Part 4-22: Testing and measurement techniques – Radiated emissions and immunity measurements in fully anechoic rooms (FARs)*

CISPR 14-1:2005, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission*

CISPR 14-1:2005/AMD1:2008

CISPR 14-1:2005/AMD2:2011

### 3 Terms, definitions and abbreviations

#### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions related to EMC and related phenomena found in IEC 60050-161, as well as the following terms and definitions apply.

##### 3.1.1

##### **electromagnetic compatibility**

ability of a device, unit of equipment or system to function satisfactorily in its electro-magnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment

##### 3.1.2

##### **port**

particular interface of the specified apparatus with the external electromagnetic environment

Note 1 to entry: See Figure 1.

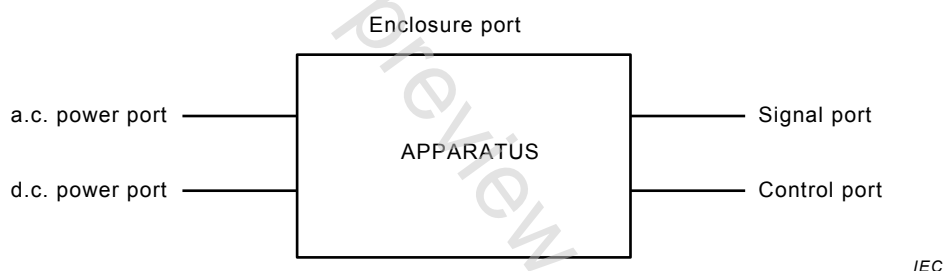


Figure 1 – Examples of ports

##### 3.1.3

##### **enclosure port**

physical boundary of the apparatus through which electromagnetic fields may radiate or impinge

##### 3.1.4

##### **series production**

production process in which identical apparatus are manufactured continuously or in batches (consisting of identical products)

##### 3.1.5

##### **safety extra-low voltage**

voltage which does not exceed 50 V a.c. or 120 V ripple free d.c. between conductors, or between any conductor and earth, in a circuit which is isolated from the supply mains by such means as a safety isolating transformer

##### 3.1.6

##### **toy**

product designed for, or clearly intended for use in play by children under 14 years old

Note 1 to entry: Toys may incorporate motors, heating elements, electronic circuits and their combination.